

The opinion in support of the decision being entered today was not written  
for publication and is not binding precedent of the Board.

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

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Ex parte HANS-PETER RATH

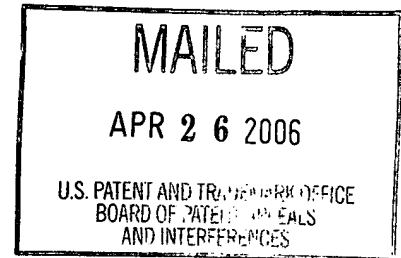
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Appeal No. 2005-2232  
Application No. 09/701,587

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ON BRIEF

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Before KIMLIN, WARREN and JEFFREY T. SMITH, Administrative Patent Judges.  
JEFFREY T. SMITH, Administrative Patent Judge.

DECISION ON APPEAL

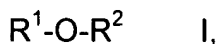
This is a decision on appeal from the examiner's final rejection of claims 1 to 9.  
Claim 10 stands withdrawn from consideration. (Answer, p. 2). We have jurisdiction  
under 35 U.S.C. § 134.

### BACKGROUND

The present invention relates to process for preparing highly reactive polyisobutenes having a terminal vinylidene group content of more than 80 mol% and an average molecular weight of from 500 to 5000 dalton by cationic polymerization of isobutene in the liquid phase in the presence of boron trifluoride complexes at from +40 °C to -60 °C. (Brief, p. 3). Representative claim 1 appears below:<sup>1</sup>

1. A process for preparing highly reactive polyisobutenes having a terminal vinylidene group content of more than 80 mol% and an average molecular weight of from 500 to 5000 dalton by cationic polymerization of isobutene in the liquid phase in the presence of a complex comprising boron trifluoride at from +40°C to -60°C, which comprises polymerizing in the presence of a complex comprising boron trifluoride and

- a) a primary alcohol having 1-20 carbon atoms or a secondary alcohol having 3-20 carbon atoms, or a mixture of these alcohols, and
- b) a bis-secondary ether containing no tertiary alkyl groups and having the formula I



where R<sup>1</sup> and R<sup>2</sup> are secondary alkyl groups having 3-10 carbon atoms.

The Examiner relies on the following reference in rejecting the appealed claims:

RATH

5,408,018

Apr. 18, 1995

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<sup>1</sup> According to the Examiner, Answer page 3, the claim 1 appearing in the appendix to the Brief contains errors. The Examiner asserts that the claim on appeal was presented in the amendment filed November 6, 2003. Appellant has not refuted the Examiner's statement in responsive briefing. As such, we will use claim 1 which was presented in the amendment filed November 6, 2003, for determining the issues on appeal. The claim presented in this amendment contained

Claims 1 to 9 stand rejected under 35 U.S.C. 103(a) as unpatentable over Rath.  
(Answer, pp. 3-5). We affirm the rejection.

Rather than reiterate the conflicting viewpoints advanced by the Examiner and the Appellant regarding the above-noted rejection, we make reference to the Answer (mailed September 16, 2004) for the Examiner's reasoning in support of the rejection, and to the Brief (filed August 10, 2004) for the Appellant's arguments there against.

We initially note that Appellant asserts that for purposes of appeal the claims stand or fall together. (Brief, p. 2). We select claim 1 as representative of the appealed claims and will limit our discussion thereto.

#### OPINION

Upon careful review of the respective positions advanced by Appellant and the Examiner, we affirm for the reasons advanced by the Examiner and add the following primarily for emphasis.

Appellant argues the Examiner has established a *prima facie* case of obviousness because:

The polymerization mechanism requires protons or carbocations to be delivered from the complexing system which works best with sterically hindered molecules. In the present invention which is directed to the polymerization of isobutene, the best known system comprises tertiary ethers (i.e. tertiary butyl ether) and secondary alcohols (i.e., isopropanol). Ethers other than tertiary ethers also form complexes with boron trifluoride. However, they alone are not capable of inducing

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markings to show changes. Claim 1 as reproduced herein does not contain the markings.

isobutene polymerization. Also, primary alcohols alone are not as reactive as required. Applicant surprisingly found that the combination of bis-secondary alcohols with primary alcohols works well even though each component taken alone are not reactive or not reactive enough for preparing high reactive polyisobutenes. (Brief, pp. 3-4).

Appellant's argument is not persuasive. We agree with the Examiner that Rath teaches a process for preparing highly reactive polyisobutene which can use symmetrical and unsymmetrical C<sub>2</sub>-C<sub>20</sub> dialkyl ethers. (Answer, p. 4). Thus, a person of ordinary skill in the art would have reasonably expected that the use of ethers that meet the claimed invention would have been suitable for use in a process for preparing highly reactive polyisobutene.

We note that the Examiner provides a discussion of a declaration that was previously filed in the prosecution of this application. However, the Appellant has not provided a discussion of this evidence in the Brief. As such, for purposes of appeal, Appellant has not relied upon this evidence to rebut the Examiner's obviousness determination.

### CONCLUSION

Based on our consideration of the totality of the record before us, having evaluated the *prima facie* case of obviousness in view of Appellant's arguments, we conclude that the subject matter of claims 1 to 9 would have been obvious to a person of ordinary skill in the art from the teachings of the cited prior art. See *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). Accordingly, the Examiner's rejection under 35 U.S.C. § 103 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(iv) (2004).

**Affirmed**

  
JEFFREY T. SMITH  
Administrative Patent Judge

BOARD OF PATENT  
APPEALS  
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